

REMARKS

Upon entry of the present amendment, claim 1 will be amended. Claims 1-5 will remain pending, with claim 1 being the sole independent claims.

Claim 1 has been amended to be more in accordance with U.S. practice, and has not been amended in view of the prior art. Accordingly, no estoppel should attach to the present amendment.

Reconsideration of the objection and rejections of record, and allowance of the application in view of the following remarks are respectfully requested.

Information Disclosure Statements

Applicants express appreciation for the Examiner's confirmation of consideration of Applicants' Information Disclosure Statement, filed November 27, 2006, by including an initialed copy of the Form PTO-1449 with the Office Action.

Applicants note that a Supplemental Information Disclosure Statement was filed November 30, 2007 making of record a Supplementary European Search Report.

Claim of Foreign Priority

Applicants express appreciation for the acknowledgment of the claim of foreign priority as well as receipt of the certified copy. In order that the record is complete, it is noted that this is a National Stage application, and the certified copy has been received in this national stage application from the International Bureau.

Objection To Declaration

The Declaration is objected to as the citizenship of each inventor is not identified.

In response, a Declaration executed by and including the citizenship of Katsuyuki KUDO is submitted herewith. Accordingly, the citizenship of each inventor is presented within the originally submitted Declaration and the Declaration submitted herewith.

Accordingly, this ground of objection should be withdrawn.

Rejections

The following rejections are set forth in the Office Action.

(a) Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by JP 2001-226722 (hereinafter “JP ‘722”).

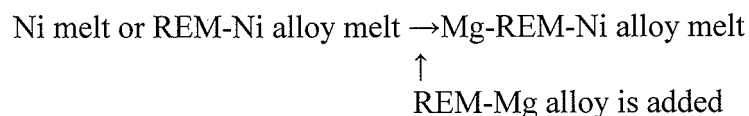
(b) Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP ‘722.

In response to these grounds of rejection, Applicants’ independent claim 1 is directed to a method of producing a Mg-REM-Ni based hydrogen-absorbing alloy, comprising a first step of melting a rare earth element starting material having a low evaporation pressure and a nickel starting material in a melting furnace to obtain a melt of REM-Ni alloy; a second step of adding magnesium starting material to the melt of REM-Ni alloy and keeping a pressure inside the melting furnace at a given level to obtain a melt of Mg-REM-Ni alloy; and a third step of cooling and solidifying the melt of Mg-REM-Ni alloy at a given cooling rate.

The rejections assert that JP ‘722 discloses a method of producing a Mg-REM-Ni based hydrogen-absorbing alloy. However, this assertion is without appropriate basis, whereby the rejections are improper and should be withdrawn.

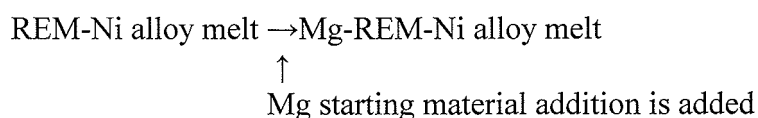
JP '722 discloses a method of melting in paragraph [0016] wherein a rare earth-Mg system alloy is prepared first, which is supplied to nickel molten metal or a rare earth-nickel alloy molten metal, and the hydrogen storing metal alloy of a requested presentation is prepared. Moreover, claim 1 of JP '722 includes that a rare earth-magnesium-nickel alloy of the requested presentation is prepared by adding a rare earth-magnesium alloy to the nickel melt or rare earth-nickel alloy.

The method disclosed by JP '722 is simply illustrated as follows.



To the contrary, the melting method of the present invention, as recited in independent claim 1, is directed to a method of obtaining a Mg-REM-Ni alloy melt by melting a rare earth element starting material and a nickel starting material in a melting furnace to obtain a melt of REM-Ni alloy at a first step, then adding a magnesium starting material to the melt of REM-Ni alloy at a second step, and at the same time keeping pressure inside the melting furnace at a given level .

This is simply illustrated as follows.



In other words, the melting method of JP '722 is a technique of manufacturing a REM-Mg system alloy having a low melting point (600-1000°C) in advance, using it as an additional starting material to lower the temperature of a REM-Ni series alloy melt and control composition change caused by evaporation of Mg, and thus obtaining a Mg-REM-Ni alloy of the requested composition.

In contrast, the present invention discloses the technique of melting REM starting material and Ni starting material to obtain REM-Ni alloy melt, adding Mg starting material, further setting the alloy melting temperature at the time of Mg starting material being added as the appropriate range, controlling the pressure in the melting furnace after Mg starting material is added so that the alloy melting temperature could be controlled in the appropriate range and that the evaporation of Mg could be inhibited, and thus obtaining the desired Mg-REM-Ni alloy.

With respect to the above, the Examiner's attention is directed to, for example, Applicants' specification at page 7, first two full paragraphs, wherein it is disclosed that:

In this case, the temperature of the melt is required to be kept within the above temperature range even after the addition of the magnesium starting material. However, the inside of the furnace after the addition of Mg is filled with the Mg vapor, so that it is very difficult to visually confirm the temperature of the melt by inserting a thermocouple or the like into the melt. In the invention, therefore, the pressure inside the melting furnace is controlled instead that the temperature inside the melting furnace is kept within the above temperature range to provide substantially the same melting condition as in the temperature range.

Moreover, FIG. 1 is a graph showing a relation between the pressure inside the melting furnace and the temperature of the melt. That is, when the pressure inside the furnace is controlled by an output load of the melting furnace for controlling the temperature of the melt to the above range, the temperature of the melting atmosphere can be naturally controlled to the above range, which renders the control of accurate magnesium composition. In this case, the pressure inside the furnace corresponding to the temperature range is 350-500 Torr as seen from FIG. 1.

Japan '722 does not disclose a second step of adding magnesium starting material to the melt of REM-Ni alloy and keeping a pressure inside the melting furnace at a given level to obtain a melt of Mg-REM-Ni alloy.

Furthermore, the present invention discloses the method of obtaining the desired compound alloy of high precision by melting Mg have high vapor pressure and a metal having a higher melting

point than Mg. In contrast, JP '722 includes the premise that the corresponding alloy, i.e., REM-Mg alloy, already exists and does not provide disclosure how to obtain this alloy. Accordingly, for this additional reason, the rejections are without appropriate basis and should be withdrawn.

In view of the above, Applicants submit that there is no teaching or suggestion in 'JP '722 of each and every feature of Applicants' independent claim 1 so that the anticipation rejection is without appropriate basis and should be withdrawn.

Moreover, Applicants submit that one having ordinary skill in the art would not have modified JP '722 in the manner asserted in the obviousness rejection of claims 2-5. In this regard, Applicants submit that the obviousness rejection is using improper hindsight based upon Applicants' disclosure in an attempt to arrive at Applicants' claimed subject matter. However, one having ordinary skill in the art would not arrive at Applicants' claimed subject matter at least for the reasons set forth above.

Therefore, the rejections of record should be withdrawn, and the Notices of Allowance and Allowability should be mailed.

CONCLUSION

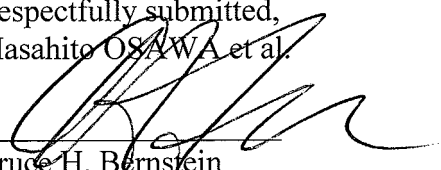
In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the objection and rejections of record, and allow each of the pending claims.

Applicants therefore respectfully request that an early indication of allowance of the application be indicated by the mailing of the Notices of Allowance and Allowability.

Should the Examiner have any questions regarding this application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

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